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More than just contraception: the impact of the levonorgestrel-releasing intrauterine system on public health over 30 years

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ABSTRACT

Universal access to sexual and reproductive health services is essential to facilitate the empowerment of women and achievement of gender equality. Increasing access to modern methods of contraception can reduce the incidence of unplanned pregnancy and decrease maternal mortality. Long-acting reversible contraceptives (LARCs) offer high contraceptive efficacy as well as cost-efficacy, providing benefits for both women and healthcare systems. The levonorgestrel-releasing intrauterine system (LNG-IUS) first became available in 1990 with the introduction of Mirena (LNG-IUS 20), a highly effective contraceptive which can reduce menstrual blood loss and provide other therapeutic benefits. The impact of the LNG-IUS on society has been wide ranging, including decreasing the need for abortion, reducing the number of surgical sterilisation procedures performed, as well as reducing the number of hysterectomies carried out for issues such as heavy menstrual bleeding (HMB). In the context of the COVID-19 pandemic, Mirena can provide a treatment option for women with gynaecological issues such as HMB without organic pathology, minimising exposure to the hospital environment and reducing waiting times for surgical appointments. Looking to the future, research and development in the field of the LNG-IUS continues to expand our understanding of these contraceptives in clinical practice and offers the potential to further expand the choices available to women, allowing them to select the option that best meets their needs.

BACKGROUND

Sexual and reproductive health (SRH) constitutes a fundamental human right and plays a vital role in the empowerment of women and helping achieve gender equality. Universal access to SRH services is essential to achieving this objective.[1 2] Increasing access to modern, effective methods of contraception can reduce the incidence of unplanned pregnancy, decrease maternal mortality, and can also contribute to fighting poverty.[1 3 4]

Long-acting reversible contraceptives (LARCs), such as implants, and hormonal and non-hormonal intrauterine devices (IUDs), are not only highly effective at preventing unintended pregnancy and subsequent abortion but are also cost-effective options that provide benefits for both women and healthcare systems.

Mirena (Bayer AG, Berlin, Germany) was the first levonorgestrel-releasing intrauterine system (LNG-IUS) of its kind. Developed by the Population Council's International Committee for Contraception Research, Mirena (also termed LNG-IUS 20 based on the average in vivo LNG release rate over the first year[5]) became available in 1990 in Finland under the name Levonova. Mirena is a highly effective contraceptive, with a long-lasting but reversible effect that does not require a daily routine. It also reduces menstrual blood loss, which women often find beneficial. Additionally, Mirena has therapeutic benefits; it is an effective treatment for heavy menstrual bleeding (HMB) without an organic cause and dysmenorrhoea, as well as providing endometrial protection for peri- and postmenopausal women receiving menopausal hormone therapy.

The impact of the LNG-IUS on society has been wide ranging: from decreasing the need for abortion (ie, unwanted pregnancy),[6 7] to reducing the number of surgical sterilisation procedures

performed,[8] as well as reducing the number of hysterectomies carried out for issues such as HMB without an organic cause,[9 10] allowing women to avoid an invasive surgical procedure and maintain their fertility.

NOW MORE THAN EVER: THE ROLE OF LARCS IN THE CHANGING HEALTHCARE LANDSCAPE

With the COVID-19 pandemic causing widespread disruption to the provision of healthcare, including contraceptive services and supply chains, there are bound to be concerns regarding the potential for increased unintended pregnancies.[11]

Unlike short-acting methods such as oral contraceptive pills, long-acting methods provide effective contraception for years after a single intervention that can mitigate concerns regarding access to and availability of contraceptive services.

As we seek to preserve capacity in healthcare systems and save valuable resources while increasing access to all, a shift towards medical treatment delivered in community settings for issues such as HMB is taking place in clinical practice. Medical options are less invasive than surgical treatments, generally preserve fertility, and in most cases can be prescribed and implemented rapidly and easily. In the context of the COVID-19 pandemic, the therapeutic benefits of Mirena provide an option for treating women with conditions such as HMB without an organic cause or dysmenorrhoea that minimises exposure to the hospital environment and reduces lengthy waits for surgical appointments.

BEYOND GYNAECOLOGICAL PRACTICE: HOW EFFECTIVE CONTRACEPTION CAN EMPOWER WOMEN

Increasing awareness and access to contraception can help women in low-income settings, by mitigating poverty and challenging gender inequalities. By providing discrete, effective contraception and reducing menstrual bleeding in the majority of users, the LNG-IUS can facilitate women's increased productivity and participation in society, as well as reducing some of the issues caused by limited access to sanitary protection (menstrual poverty) and providing freedom from social stigma and exclusion.

Effective contraception for women living with comorbidities, such as HIV/AIDS or anaemia, is also vital to ensure a well-timed pregnancy that occurs when they are in optimal health and is not associated with further negative health consequences. Not only does Mirena contribute to preventing unplanned pregnancy in these women, but the associated decrease in menstrual blood loss can have the additional benefit of reducing exposure to infected blood in the context of HIV/AIDS,[12 13] and improving the body's iron stores in the context of anaemia.

The reduced number of visits to healthcare providers (eg, to obtain repeat prescriptions) and reduced need to purchase sanitary protection also decreases the economic burden both to women and the healthcare system.

By decreasing the amount of sanitary protection, packaging and other waste products, the LNG-IUS and other long-acting methods can also be seen as 'green contraceptives' that reduce the traffic of non-biodegradable items to landfill sites.

THE FUTURE OF THE LNG-IUS AND PUBLIC HEALTH

With the popularity of LARCs, especially the LNG-IUS, continuing to increase it is good to know that research in this field is keeping pace. Real-world studies continue to deepen our understanding of how the LNG-IUS performs in clinical practice and further controlled trials offer the potential to expand or extend its use. Additionally, next-generation IUDs are being explored, which could further expand the options available to women, allowing them to choose the method that is best suited to their needs.[14] Moving forward, it seems reasonable to hope that with further developments and ongoing initiatives, access to LARCs will become a possibility for women across the globe.

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